



# **Military Highway Continuous Flow Intersection (CFI)**

## **Initial Financial Plan**

**November 1, 2015**

**State Project Number(s): 0013-122-V03, 0165-  
122-V04, 0165-122-181**

**UPC(s): 9783, 1765, 84243**

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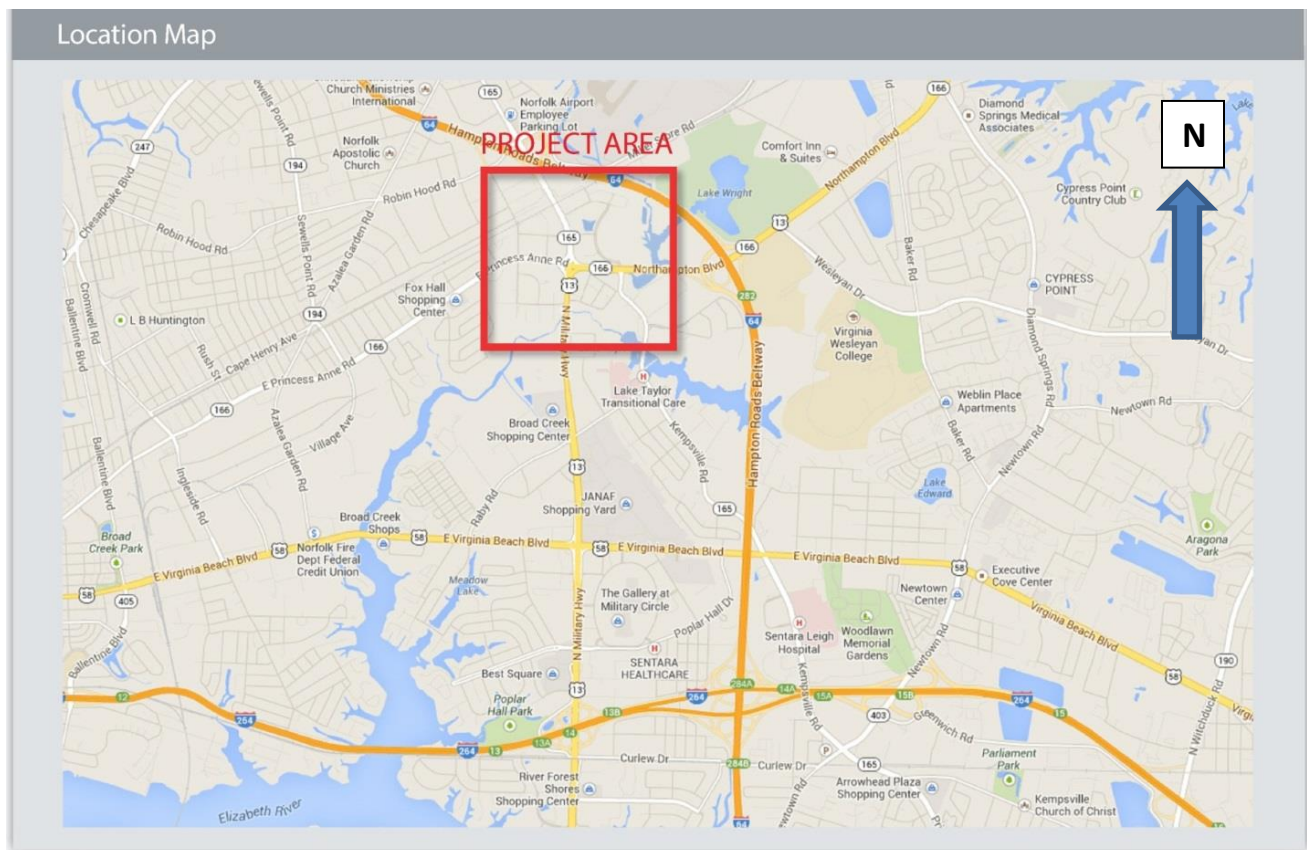
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## 1. PROJECT DESCRIPTION

The Military Highway Continuous Flow Intersection project is the first of its kind being administered solely by the Virginia Department of Transportation (VDOT). In collaboration with the City of Norfolk, it has been determined that the intersection of Military Highway with Northampton Blvd and Princess Anne Road is a major stumbling block in improving the traffic flow in this area of the City, where commerce is prevalent. Congestion alleviation is the purpose for this project and the method used to meet that objective is to implement a Continuous Flow Intersection (CFI). Figure 1 shows the general geographic area of the project.

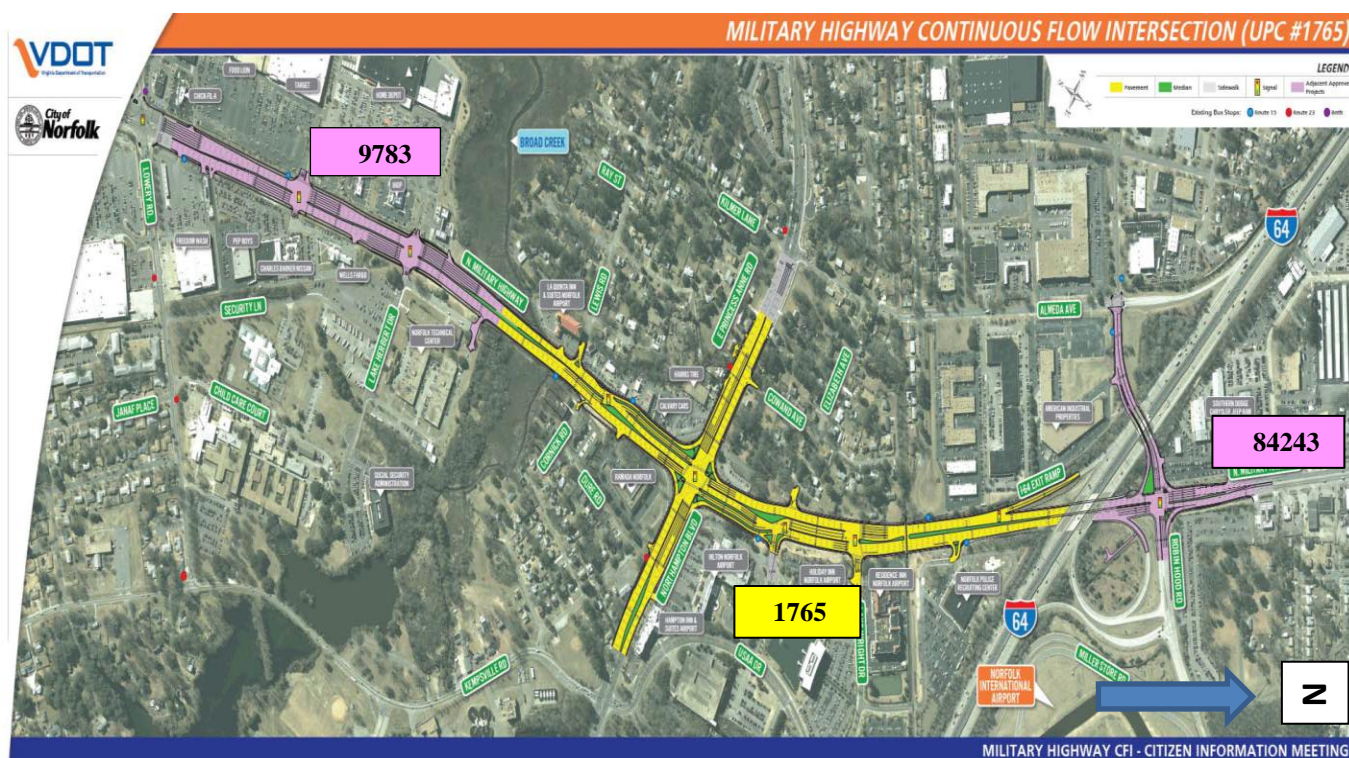


**Figure 1: Geographic Area**

This project is comprised of three (3) UPC's (9783, 1765 and 84243) that were originally to be administered as Design-Bid-Build projects. A recent directive initiated the combining of all three (3) into a Design-Build (D-B) Delivery. The physical extent of the project is entirely in the City of Norfolk on Military Highway with transitional work on connecting side streets. Limits of the project are 0.023 miles south of Lowery Road and continuing to 0.230 miles north of I-64. Current four lanes will be widened to eight lanes with the "centerpiece" being a Continuous Flow Intersection.

The major items in the project scope are full depth pavement reconstruction, replacement of an existing box culvert conveying Broad Creek, new drainage and storm water systems and new traffic control devices. Figure 2 reflects the project limits along with their associated UPC's. The Design Builder will be

responsible for acquiring water quality permits. Currently, the project has a Categorical Exclusion and the Preliminary Environmental Certification (EQ 103) was obtained on March 23, 2015.



**Figure 2: Project Limits**

The project web site contains additional information and is accessible to the public. Periodic updates are uploaded as the project progresses through major milestones. The web address is: [http://www.virginiadot.org/projects/hamptonroads/military\\_highway\\_continuous\\_flow\\_intersection.asp](http://www.virginiadot.org/projects/hamptonroads/military_highway_continuous_flow_intersection.asp) and provides readers an instructional video on how a continuous flow intersection operates.

## 2. SCHEDULE

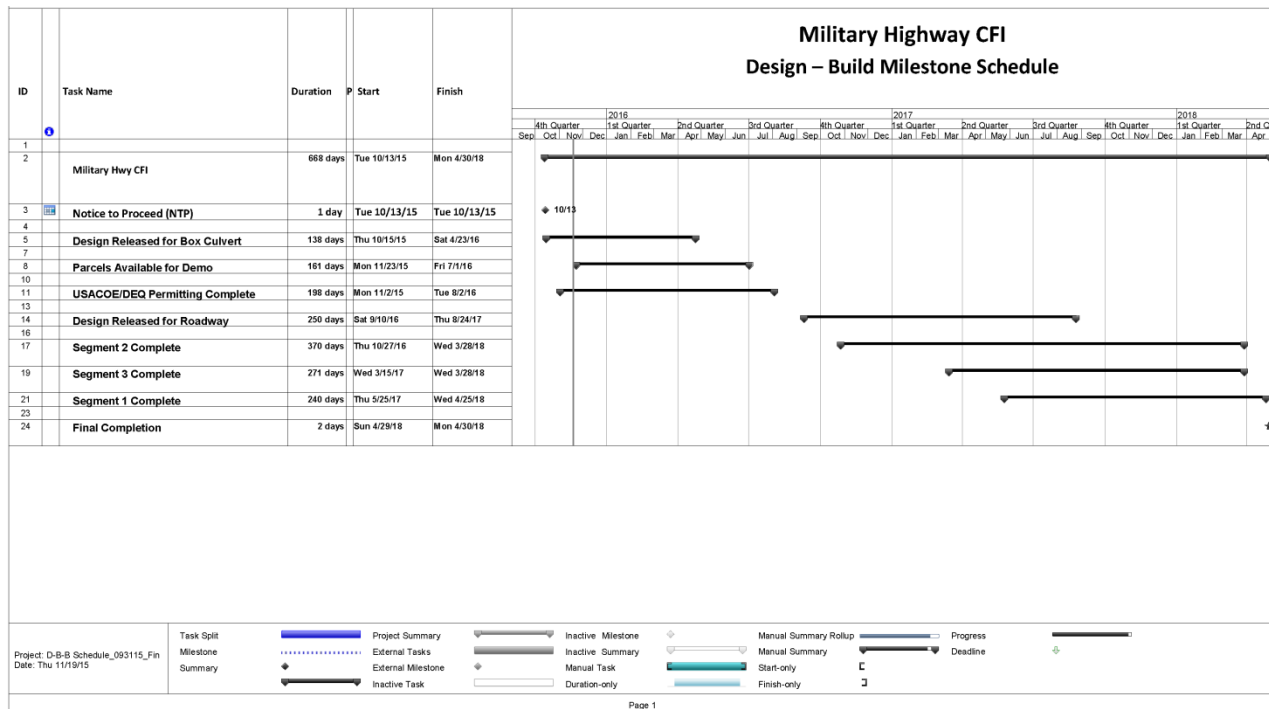
Although there are three (3) UPC's for this Design-Build project, there is only one (1) FHWA Agreement. Therefore, the project schedule is being treated as if only one UPC exists.

The Commonwealth Transportation Board (CTB) awarded the project in their September 19, 2015 meeting. The Notice to Proceed (NTP) on the project was given on October 13, 2015.

The major phasing of this project is reflected below in Figure 3. Future Financial Plan Annual Updates will reflect the Design-Builder's updated schedule. For purposes of this Initial Plan, the schedule in Figure 3 is the reflection of the Design Builders initial schedule containing the proposed project phasing and major milestones. It is noted that the contract contains an early completion date and a final completion date (no excuses). These are March 16, 2018 and May 1, 2018 respectively. There are liquidated damages associated with this contract for failing to complete by May 1, 2018 and there is a

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maximum award (\$495,000) for meeting the early completion date. There are also liquidated damages in the amount of \$3,100/day for every day after the fixed completion date of May 1, 2018.



**Figure 3: Project Schedule Overview**

### 3. PROJECT COST

The project costs have been developed through the progression of the design process. Estimates are in line with the contract award amount of \$59,833,333. The estimates for project cost are reflected in VDOT's Integrated Project Management (iPM) system for the project costs. This includes all associated costs for preliminary engineering (PE), right of way (RW) and construction (CN).

The current estimate was developed from input received by the VDOT respective disciplines and the project consultant based upon the plan development and the project's Technical Requirements presented for bids. The cost estimating methodology centered on the design development of the bid plans and their ancillary impacts to RW, design environmental items (i.e. Storm Water Management Ponds) and utility relocations. The major construction estimate process was developed through VDOT's Transport Estimate program and included all roadway and drainage construction, traffic control, signage and signalization. The estimate also accounts for normal project costs such as construction engineering and inspection (CEI), railroad force account costs, utilization of other state forces and anticipated use of state and local police agencies.

Table 1 below reflects the project's three UPC's and phasing used to develop the project Final Submission cost estimates. Funds have been allocated in the amount of \$114,078,512. One more estimate needs to be compiled based on the acceptance of the award value of the design build bid. Estimate values in Table 1 will be updated in future annual updates.



**Table 1: Project Cost Estimate per UPC**

UPC	Phase	A	B	A-B
		Estimate	Current Expenditures as of November 1, 2015	Balance to Complete
UPC 9783	PE	\$ 3,195,947	\$ 3,062,614	\$ 133,333
	RW	\$ 5,892,997	\$ 2,940,972	\$ 2,952,025
	CN	\$ 17,191,173	\$ -	\$ 17,191,173
	<b>TOTAL</b>	<b>\$ 26,280,117</b>	<b>\$ 6,003,586</b>	<b>\$ 20,276,531</b>
UPC 1765	PE	\$ 7,379,147	\$ 7,296,661	\$ 82,486
	RW	\$ 18,707,825	\$ 4,101,614	\$ 14,606,211
	CN	\$ 34,389,123	\$ 8,450	\$ 34,380,673
	<b>TOTAL</b>	<b>\$ 60,476,095</b>	<b>\$ 11,406,725</b>	<b>\$ 49,069,370</b>
UPC 84243	PE	\$ -	\$ -	\$ -
	RW	\$ 6,807,055	\$ 823,501	\$ 5,983,554
	CN	\$ 20,058,321	\$ -	\$ 20,058,321
	<b>TOTAL</b>	<b>\$ 26,865,376</b>	<b>\$ 823,501</b>	<b>\$ 26,041,875</b>
<b>GRAND TOTAL</b>		<b>\$ 113,621,588</b>	<b>\$ 18,233,812</b>	<b>\$ 95,387,776</b>

#### 4. PROJECT FUNDS

The total project cost is estimated at \$113,621,588. The Final FY 2016-2021 Six-Year Improvement Program (SYIP) adopted by the CTB includes previous and FY 2016 allocations totaling \$76,276,557 and allocations in future fiscal years FY 2017 through FY 2019 totaling \$37,801,955.

The project is fully funded with a combination of state, federal and other sources:

- \$54,801,955 from GARVEE bonds
- \$28,656,570 from federal sources
- \$4,797,011 from state sources
- \$25,822,976 from other sources including Urban Construction formula

Tables 2A, 2B and 2C below, reflect the current allocations required for each of the UPC's. Once the final submission estimates are updated to the award estimates, allocations will be transferred among the three projects. At the end of Table 2C a Total Project Summary line is provided.

Project funding is demonstrated in the Hampton Roads Transportation Planning Organization's Long Range Transportation Plan and Transportation Improvement Program (TIP), as well as the Commonwealth's Statewide Transportation Program (STIP).

**Six-Year Improvement Program Funding**

**Summary of Project Funding by Source**  
(Amounts in 000's)

**Table 2A: Allocations UPC 9783**

Funding Source		Previous	2017	2018	2019	2020	2021	2022	TOTAL
UPC 9783	RSTP	\$ 11,029	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 11,029
	STP	\$ 1,429	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,429
	Minimum Guarantee	\$ 1,342	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,342
	Federal Subtotal	\$ 13,800	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 13,800
	RSTP Match	\$ 2,757	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,757
	State Subtotal	\$ 2,757	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,757
	Urban Formula - Federal/State	\$ 10,169	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,169
	Local Match	\$ 264	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 264
	Other Subtotal	\$ 10,433	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,433
	UPC TOTAL	\$ 26,990	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 26,990

**Table 2B: Allocations UPC 1765**

Funding Source		Previous	2017	2018	2019	2020	2021	2022	TOTAL
UPC 1765	GARVEE	\$ 17,000	\$ 19,052	\$ 9,750	\$ 9,000	\$ -	\$ -	\$ -	\$ 54,802
	Minimum Guarantee	\$ 4,865	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,865
	STP	\$ 240	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 240
	Federal Subtotal	\$ 22,105	\$ 19,052	\$ 9,750	\$ 9,000	\$ -	\$ -	\$ -	\$ 59,907
	Capital Projects Revenue	\$ 500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 500
	Residue Parcel	\$ 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1
	State Subtotal	\$ 501	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 501
	Urban Formula – Federal State	\$ 4,636	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,636
	Local Match	\$ 156	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 156
	Other Subtotal	\$ 4,792	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,792
	UPC TOTAL	\$ 27,398	\$ 19,052	\$ 9,750	\$ 9,000	\$ -	\$ -	\$ -	\$ 65,200

**Table 2C: Allocations UPC 84243 & Project Total**

Funding Source		Previous	2017	2018	2019	2020	2021	2022	TOTAL
UPC 84243	RSTP	\$ 6,155	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,155
	STP	\$ 3,569	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,569
	Minimum Guarantee	\$ 28	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 28
	Federal Subtotal	\$ 9,752	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,752
	RSTP Match	\$ 1,539	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,539
	State Subtotal	\$ 1,539	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,539
	Urban Formula - Federal/State	\$ 10,313	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,313
	Local Match	\$ 284	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 284
	Other Subtotal	\$ 10,597	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,597
	UPC TOTAL	\$ 21,888	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 21,888
PROJECT TOTAL All UPCs		\$ 76,276	\$19,052	\$ 9,750	\$ 9,000	\$ -	\$ -	\$ -	\$ 114,078

### **Federal Fund Sources and Special Funding Techniques**

There are six project authorizations associated with UPCs 9783, 1765, and 84243, as summarized in Table 3 below.

The current design-build project comprised of UPCs 9783, 1765, and 84243 was originally intended to be administered as consecutively delivered design-bid-build projects. As such, there are five federal authorizations associated with UPCs 9783, 1765, and 84243 that were approved by Federal Highway Administration (FHWA) prior to the current design-build project authorization.

Preliminary engineering, right of way, and construction activities related to the design-build delivery were authorized by FHWA on April 16, 2015 under federal project number 5A03755. The design-build project authorization is inclusive of both obligated federal funds and Advance Construction (AC) funds.

Detailed information concerning federal fund sources and special funding techniques associated with each project authorization is also provided below.



**Table 3: Summary of Project Authorizations**

Project Authorization Summary as of September 30, 2015					
Federal Project	UPC(s)	Phase Classification	Cost	Federal Funds	Advance Construction
5403929	9783	PE	\$ 3,600,000	\$ 1,268,995	\$ 0
5A03102	9783	CN	\$ 8,799,276	\$ 5,698,019	\$ 0
5403965	1765	PE	\$ 10,350,000	\$ 4,109,433	\$ 2,068,380
5403687	1765	RW	\$ 10,029,256	\$ 65,845	\$ 7,342,815
5A03104	84243	RW	\$ 4,500,000	\$ 3,600,000	\$ 0
5A03755	9783, 1765, 84243	PE, RW, CN	\$ 90,610,125	\$ 18,430,606	\$ 62,762,905
<b>Total</b>			<b>\$ 127,888,657<sup>1</sup></b>	<b>\$ 33,172,898</b>	<b>\$ 72,174,100</b>
<sup>1</sup> Agreements under review for modifications needed based on current estimated costs					

**Project Authorization Details as of September 30, 2015**

Federal Project Number 5403929 UPC 9783 PE			
Program Code	Cost	Federal Funds Obligated	AC Funds
H230	\$16,343	\$13,074	\$0
H240	\$3,583,657	\$1,255,921	\$0
<b>Total</b>	<b>\$3,600,000<sup>1</sup></b>	<b>\$1,268,995</b>	<b>\$0</b>
<sup>1</sup> Agreement under review for modification based on current estimate			

Federal Project Number 5A03102 UPC 9783 CN			
Program Code	Cost	Federal Funds Obligated	AC Funds
H240	\$188,750	\$151,000	\$0
HZ20	\$813	\$650	\$0
L230	\$2,544,613	\$2,035,690	\$0
L240	\$8,744	\$6,993	\$0
L24E	\$614,649	\$491,719	\$0
LZ20	\$1,676,749	\$1,341,399	\$0
Q230	\$3,746,332	\$2,997,066	\$0
Q500	\$18,626	\$14,901	\$0
<b>Total</b>	<b>\$8,799,276</b>	<b>\$7,039,418</b>	<b>\$0<sup>1</sup></b>
<sup>1</sup> Project has AC conversions totaling \$4,724,475			

Federal Project Number 5403965 UPC 1765 PE			
Program Code	Cost	Federal Funds Obligated	AC Funds
33D0	\$579,778	\$463,822	\$0
H240	\$5,018,000	\$1,912,213	\$0
L24E	\$879,815	\$703,852	\$0
LZ2E	\$1,080,461	\$864,369	\$0
M240	\$2,791,946	\$165,177	\$2,068,380
<b>Total</b>	<b>\$10,350,000<sup>1</sup></b>	<b>\$4,109,433</b>	<b>\$2,068,380</b>
<sup>1</sup> Agreement under review for modification based on current estimate			

Federal Project Number 5403687 UPC 1765 RW			
Program Code	Cost	Federal Funds Obligated	AC Funds
33D0	\$12,804	\$991	\$0
L24E	\$9,178,519	\$0	\$7,342,815
Q240	\$837,933	\$64,854	\$0
<b>Total</b>	<b>\$10,029,256</b>	<b>\$65,845</b>	<b>\$7,342,815</b>

Federal Project Number 5A03104 UPC 84243 RW			
Program Code	Cost	Federal Funds Obligated	AC Funds
33D0	\$398,329	\$318,663	\$0
H240	\$126,596	\$101,277	\$0
L240	\$3,975,075	\$3,180,060	\$0
<b>Total</b>	<b>\$4,500,000<sup>1</sup></b>	<b>\$3,600,000</b>	<b>\$0</b>
<sup>1</sup> Agreement under review for modification based on current estimate			

Federal Project Number 5A03755 UPCs 9783, 1765, and 84243 PE, RW, CN			
Program Code	Cost	Federal Funds Obligated	AC Funds
L240	\$20,089,754	\$0	\$16,071,805
L24E	\$43,527,045	\$0	\$43,527,045 <sup>1</sup>
LZ10	\$3,955,069	\$0	\$3,164,055
M230	\$15,172,504	\$12,138,003	\$0
M24E	\$7,865,753	\$6,292,603	\$0
<b>Total</b>	<b>\$90,610,125</b>	<b>\$18,430,606</b>	<b>\$62,762,905</b>
<sup>1</sup> Bond proceeds from future GARVEE sale totaling \$43,527,045			

## 5. FINANCING ISSUES

The use of GARVEE bonds on this project will include the obligation of federal funding for GARVEE Debt Service. Future Annual Updates to the project Financial Plan will include information on the required Debt Service and its obligation.

## 6. CASH FLOW

The project cash flow will commence shortly after award as the D-B commences data collection activities. VDOT internal costs will be incurred as well. The anticipated time frame of the cash flow will be from October 2015 through August 2018 (Through date equals completion date May 1, 2018 + 90 days for project close out).

Currently the cash flow analysis is reflected in Table 4 below and will be updated annually as expenditures are incurred. The initial estimated computations relay a surplus of \$457,000 at the project's completion. This value has the ability to change as updates are implemented to reflect actual project impacts.

### CASH FLOW ANALYSIS (Amounts in 000's)

**Table 4: Project Cash Flow Analysis**

EXPENDITURES		Thru FY	FY 2016	FY 2017	FY 2018	FY 2019	TOTAL
UPC 9783	PE	\$ 3,063	\$ 100	\$ 33	\$ -	\$ -	\$ 3,196
	RW	\$ 2,941	\$ 1,000	\$ 1,952	\$ -	\$ -	\$ 5,893
	CN	\$ -	\$ 2,500	\$ 9,305	\$ 5,381	\$ 5	\$ 17,191
UPC 1765	PE	\$ 7,297	\$ 82	\$ -	\$ -	\$ -	\$ 7,379
	RW	\$ 4,102	\$ 8,500	\$ 6,106	\$ -	\$ -	\$ 18,708
	CN	\$ 8	\$ 1,000	\$ 20,000	\$ 13,355	\$ 26	\$ 34,389
UPC 84243	PE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	RW	\$ 823	\$ 1,984	\$ 4,000	\$ -	\$ -	\$ 6,807
	CN	\$ -	\$ 1,000	\$ 15,000	\$ 4,058	\$ -	\$ 20,058
Cumulative Expenditures		\$ 18,234	\$ 34,400	\$ 90,796	\$ 113,590	\$ 113,621	\$ 113,621
Total Annual Allocations		\$ 76,276	\$ -	\$ 19,052	\$ 9,750	\$ 9,000	\$ 114,078
Cumulative Allocations		\$ 76,276	\$ 76,276	\$ 95,328	\$ 105,078	\$ 114,078	\$ 114,078
Cash Flow per Year		\$ 58,042	\$ (16,166)	\$ (37,344)	\$ (13,044)	\$ 8,969	\$ 457

## 7. P3 ASSESSMENT

This project is not a candidate for delivery via the Public Private Transportation Act (PPTA). The major consideration for this determination is because the project does not offer an acceptable payback to a private concern. This project cannot be tolled and the adjoining land parcels are all privately owned at this time, with little affordable land to be acquired. Therefore, there is not a revenue stream from the collection of tolls or land development on or near the project that would satisfy private sector payback requirements.

## 8. RISK AND RESPONSE STRATEGIES

A Risk Management process was performed on this project. It commenced in the fall of 2014 and through a series of workshops and meetings the process culminated in a Final Risk Management Report dated 2/13/15. The report was a record of the outcome of discussions on the various risk components and their mitigation strategy associated with this project. Below in Table 5 – Project Risk Assessment are the eleven (11) identified Critical Risk Factors and their mitigation strategy. The other remaining fifty seven (57) risk factors are outlined in the Risk Management Report. The full Risk Management Report can be found within the project files.

**Table 5: Project Risk Assessment**

RISK ITEM	DESCRIPTION	RESPONSIBLE PARTY	MITIGATION STRATEGY	MITIGATION STATUS
1	Roadway Design – 3 plan sets into 1 set	VDOT	Prior to RFP release, VDOT's consultant provided extensive QA/QC of the plans to assure no overlaps or omissions.	Completed
2	Roadway Design – Project MOT	VDOT & D-B	TR's cite VDOT approval on all MOT Plans. Also MOT performance measures were included in TR's for D-B to follow.	During Construction
3	Culvert Design to acquire COE Permit	D-B	RFP includes requirement for D-B to coordinate early and often with COE regarding the water quality permit.	During Construction
4	Right of Way – utility easements	VDOT & D-B	Schedule risk on both parties to achieve the necessary dates for easements. D-B to get early start on communicating with utilities.	During Construction
5	Right of Way – advanced acquisitions	VDOT	VDOT undertook advanced acquisition process on affected 9 parcels.	In process
6	Environmental – Stream relocation	VDOT	Permits from other agencies will require early start and notification process. RFP disseminated responsibility between D-B and VDOT to acquire permit.	Completed
7	Utilities – private utilities time frame	VDOT & D-B	VDOT provided updated utility survey in RFP. D-B early coordination to get Utility Companies on board.	Completed  During Construction

**Table 5: Project Risk Assessment (Continued)**

RISK ITEM	DESCRIPTION	RESPONSIBLE PARTY	MITIGATION STRATEGY	MITIGATION STATUS
8	Utilities – unknown extent of public utilities. Maintaining service during relocation efforts	D-B	RFP provided specific requirements for re-locating public utilities.	Completed
9	Utilities – unknown active or abandoned	D-B	An updated utility survey was provided in the RFP.	Completed
10	Approvals / Concurrence from 3 <sup>rd</sup> Parties. Especially RR	VDOT	Early coordination with RR and presentation of schedule requirements and when proposed submittals will happen.	In process
11	Other – accuracy of D-B Schedule	VDOT	RFP includes a detailed cost loaded CPM schedule as a requirement from the D-B. Coordinated between VDOT & D-B required.	Completed  On -going

## 9. ANNUAL UPDATE CYCLE

The submission date of the Initial Financial Plan is November 1, 2015. The first annual update will be submitted by November 1, 2016 and will be based on a "data as of" date of August 1, 2016. Future annual updates will be submitted by November 1 of that year, with a "data as of" date of August 1 of that year.